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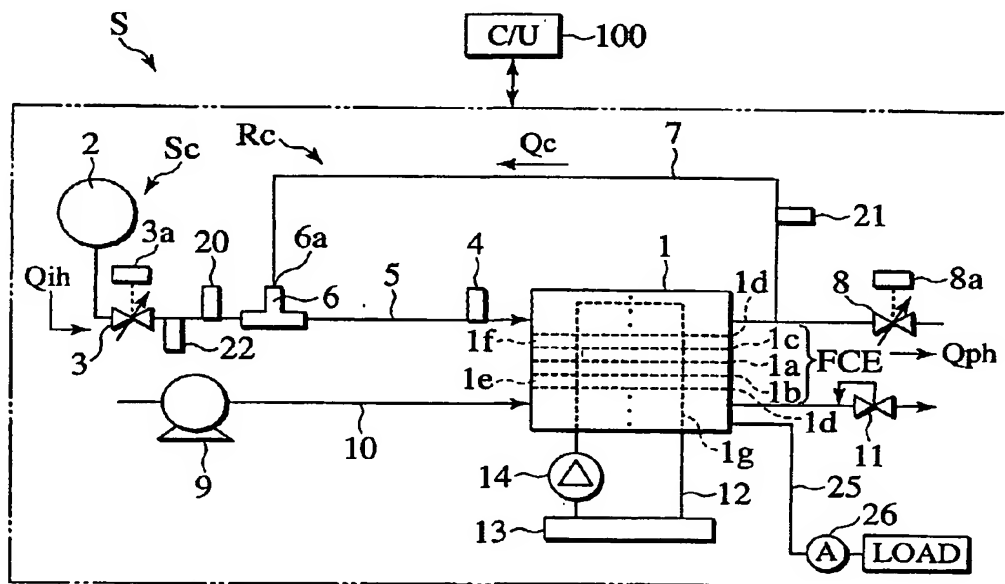
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Yokohama-shi, Kanagawa 221-0023 (JP).(88) Date of publication of the international search report:
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FUEL CELL SYSTEM



(57) Abstract: A fuel cell system which includes: a fuel cell (1); a supply system (Sc) for supplying fuel gas to the fuel cell (1); a recirculation system (Rc) for recirculating unused fuel gas from the fuel cell (1), in which the fuel gas therein may contain nitrogen; a purge valve (8) for purging nitrogen contained in the fuel gas in the recirculation system (Rc); and a controller (100) for adjusting a valve opening of the purge valve (8) so that a nitrogen concentration of the fuel gas in the recirculation system (Rc) is kept constant.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01M8/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 018 774 A (AIR LIQUIDE) 12 July 2000 (2000-07-12) column 1, line 24	1
Y	column 4, line 55 - column 5, line 2 column 5, lines 25-30 column 5, line 56 - column 6, line 9 column 6, lines 47-52	2-12
Y	US 2002/022167 A1 (HERRON THOMAS G) 21 February 2002 (2002-02-21) page 2, paragraphs 21,23 - page 3, paragraph 28; claims 1,3	2-12
E	WO 2004/049489 A (NISSAN MOTOR ; KAMIHARA TETSUYA (JP)) 10 June 2004 (2004-06-10) the whole document	1-12
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/094467 A1 (KURITA KENJI ET AL) 18 July 2002 (2002-07-18) the whole document -----	1-12

INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/JP 03/15455

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1018774	A	12-07-2000	FR 2788170 A1	07-07-2000
			CA 2293898 A1	05-07-2000
			DE 69912918 D1	24-12-2003
			DE 69912918 T2	04-11-2004
			EP 1018774 A1	12-07-2000
			JP 2000215905 A	04-08-2000
US 2002022167	A1	21-02-2002	US 6242120 B1	05-06-2001
			AU 7984500 A	10-05-2001
			CA 2374361 C	12-11-2002
			EP 1243047 A1	25-09-2002
			WO 0126173 A1	12-04-2001
WO 2004049489	A	10-06-2004	JP 2004179000 A	24-06-2004
			WO 2004049489 A2	10-06-2004
US 2002094467	A1	18-07-2002	JP 2002216812 A	02-08-2002
			DE 10201893 A1	19-09-2002